

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. – 11. (canceled)

12. (currently amended) A prosthetic or orthotic leg comprising, in combination,

a mounting member for attaching said prosthetic or orthotic leg to a biological limb of a human body,

a support member connected at its upper end at a knee joint, said support member configured for rotation with respect to said mounting member,

a foot member including a rearwardly extending heel portion and a forwardly extending toe portion that make periodic bearing contact with the ground during a walking, running or jumping gate cycle of said human body, said foot member being connected at an ankle joint to the lower end of said support member and configured for rotation relative to said support member,

a first spring configured for storing energy when said support member rotates about said knee joint to move said foot member rearwardly with respect to said knee joint and configured for releasing energy to rotate said support member about said knee joint to extend said support member, and

a second spring configured for storing energy when said support member is rotated about said knee joint to extend said support member and configured for releasing energy to rotate said foot member about said ankle joint to increase the bearing force applied to the ground by said toe portion during ankle plantar-flexion.

13. (currently amended) The prosthetic or orthotic leg set forth in claim 12 wherein said first spring is configured to store ~~stores~~ energy when said support member rotates about said knee joint to move said foot member rearwardly with respect to said knee joint during an early stance knee flexion stage of said gate cycle that follows heel-strike when said heel portion of said foot member first contacts the ground and is configured to provide ~~provides~~ shock absorption and maintain ~~maintains~~ the center of gravity of said human body at a more constant level.

14. (previously presented) The prosthetic or orthotic legs set forth in claim 13 wherein energy released by said first spring is transferred to said second spring as said support member rotates about said knee joint to extend said support member.

15. (currently amended) The prosthetic or orthotic leg set forth in claim 12 wherein said second spring also is configured to store ~~stores~~ energy during a dorsiflexion stage of said gate cycle when said support member rotates forwardly about said ankle joint as said foot member remains in contact with the ground.

16. (previously presented) The prosthetic or orthotic leg set forth in claim 15 wherein energy released by said first spring is transferred to said second spring as said support member rotates about said knee joint to extend said support member.

17. (currently amended) The prosthetic or orthotic leg set forth in claim 16 wherein said first spring is connected between said support member and a connecting point that is configured to move ~~moves~~ relative to said support member as said support member rotates about said knee joint.

18. (currently amended) The prosthetic or orthotic leg set forth in claim 17 wherein said second spring is connected between said foot member and said support member and is configured to store and release energy as said foot member rotates about said ankle joint.

19. (previously presented) The prosthetic or orthotic leg set forth in claim 12 wherein energy released by said first spring is transferred to said second spring at a predetermined time during said gate cycle.

20. (previously presented) The prosthetic or orthotic leg set forth in claim 12 wherein energy released by said first spring is transferred to said second spring while said support member rotates about said knee joint to extend said support member.

21. (currently amended) The prosthetic or orthotic leg set forth in claim 12 wherein said second spring is configured to release ~~releases~~ energy during the powered plantar-flexion stage of said gate cycle when the said toe portion of said foot member presses against the ground and raises said heel portion from the ground delivering power to the walking step to slow the fall of the body prior to the adjacent leg of said human body making bearing contact with the ground.

22. (currently amended) The prosthetic or orthotic leg set forth in claim 12 wherein said first spring is connected between said support member and a connecting point that is configured to move ~~moves~~ relative to said support member as said support member rotates about said knee joint.

23. (currently amended) The prosthetic or orthotic leg set forth in claim 22 wherein said second spring is connected between said foot member and said support member and is configured to store and release energy as said foot member rotates about said ankle joint.

24. (currently amended) The prosthetic or orthotic leg set forth in claim 12 wherein said second spring is connected between said foot member and said support member and is configured to store and release energy as said foot member rotates about said ankle joint.

25. (cancelled)

26. (new) The prosthetic or orthotic leg set forth in claim 12, wherein said first spring and said second spring are elastic springs configured to store and release energy under the control of one or more clutches.

27. (new) The prosthetic or orthotic leg set forth in claim 12, wherein said first spring and said second spring are pneumatic springs configured to store and release energy via a fluid transfer system controlled by one or more controllable valves.

28. (new) A prosthetic or orthotic leg comprising, in combination:

a knee joint;

an ankle joint;

a mounting member configured for attaching the knee joint to a biological limb of a human body above the knee of the human body;

a support member attached at its upper end to the knee joint and configured for rotation with respect to the mounting member;

a foot member attached to the ankle joint and configured for rotation with respect to the support member, the foot member making periodic bearing contact with the ground during a walking, running or jumping gait cycle of the human body, the foot member including a toe portion at its forward end and a heel portion at its rear end; and

a spring that is coupled past the knee joint and configured for storing energy when the knee joint extends during ankle dorsi-flexion, the spring being thereafter coupled past the ankle joint and configured to release energy used to rotate the foot member about the ankle joint in order to increase the bearing force applied to the ground by the toe portion during ankle plantar-flexion.

29. (new) A prosthetic or orthotic leg as set forth in claim 28, wherein the spring is coupled past both the knee joint and the ankle joint during ankle dorsi-flexion and configured to store energy due to both knee extension and ankle dorsi-flexion.

30. (new) A prosthetic or orthotic leg as set forth in claim 29, wherein the spring is coupled to the ankle joint but decoupled from the knee joint during ankle plantar-flexion.

31. (new) A prosthetic or orthotic leg as set forth in claim 28, further comprising an additional spring coupled past the knee joint and configured for storing energy as the knee flexes during early stance knee flexion and configured for releasing energy as the knee extends.

32. (new) A prosthetic or orthotic leg as set forth in claim 28, wherein the first spring is an elastic spring configured to store and release energy under the control of one or more clutches.

33. (new) A prosthetic or orthotic leg as set forth in claim 31, wherein the first spring and the additional spring are elastic springs configured to store and release energy under the control of one or more clutches.

34. (new) A prosthetic or orthotic leg as set forth in claim 31, wherein the first spring and the additional spring are pneumatic springs configured to store and release energy via a fluid transfer system controlled by one or more controllable valves.